(11) 492,047

PATENT SPECIFICATION (21) 24,378/77

Int. Cl.[2] (51) F16L 55/14; A61M 5/00; A61M 5/14

Application Number (21) 24378/77
Lodged (22) 10th May 1976
PC 5871
(Accompanied by a Provisional Specification)
Complete Specification entitled (54) DRIP FEED CONTROL MEANS

Lodged (23) 18th April, 1977
Accepted (44) 28th March, 1978
Convention Priority (30) Nil
Published (41) 20th April, 1978

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Related Art (56)

449596	(19049/70)	74.5, 74.71, 87.4-0
442860	(19047/70)	87.4, 74.71
430131	(53068/69)	74.71, 74.72
446519	(17254/70)	68.3, 00.8, 56.5, 74.71
61910/73		74.71, 87.4

The following statement is a full description of this invention, including the best method of performing it known to us :

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This invention relates to means for controlling the flow, through a flexible tube, of a liquid required to issue from the tube as a slow stream amounting, when required, to no more than a drip feed.

Such control means are widely used for the administration to patients, of plasma, blood, and other therapeutic or nutrient liquids, by subcutaneous injection.

It is well-known to control the flow of a fluid through a flexible tube by clamping the tube so that its cross-sectional area, and hence the liquid flow through the stricture so created, will be reduced. The prior art clamping arrangements, however, have not been entirely satisfactory because the clamping screws employed may creep slightly through vibration or through being accidentally jarred, thus to vary the liquid flow rate perhaps only slightly but nevertheless possibly injuriously for the patient.

A further objection with the prior clamping arrangements is that any change in the dosage, either accidental or intentional, can be affected only by observing the flow rate of the actual liquid; moreover, there is no ready way by which a previous flow rate setting may be reset to a selected dosage rate.

Another objectionable feature of many of the existing clamping arrangements is that they cannot be readily applied to a tube sidewardly and therefore they have to be applied inconveniently by application to one

end of the tube and then adjusted longitudinally of the tube to the required point of flow control.

The object of the present invention is to overcome the indicated disabilities.

The invention provides drip feed control means comprising:

(a) an open-ended sleeve adapted to have a flexible liquid-carrier tube extending longitudinally through it;

(b) a movable clamping plate mounted by one end inside said sleeve so that the other free end of the plate may bear against a tube extending through said sleeve;

(c) an adjustment screw which extends through a nut mounted on the wall of said sleeve and has one end able to bear against said clamping plate;

(d) a turning knob fixed on the other end of said screw; and,

(e) rotation-restraining means which permit intended manual rotation of said knob while preventing unwanted rotation thereof.

An example of the invention is illustrated in the drawings herewith.

Fig. 1 is a plan.

Fig. 2 is a part sectional side elevation, partly taken on line 2-2 in Fig. 1.

Fig. 3 is a sectional end elevation taken on line 3-3 in Fig. 1.

Referring to the drawings, an open-ended sleeve 4, preferably has one wall longitudinally slotted, as indicated at 5, so that the sleeve may be applied sidewardly to a hose or tube required to extend through the sleeve.

A tube clamping plate 6 is mounted by one end on the wall 7 of the sleeve. The plate is movable by reason of its integral connection (8) to the wall being flexible. The plate 6 could, instead, be hinge mounted on the sleeve wall. Wall 7 of the sleeve has a nut or threaded boss 9 fixed on it. This nut accommodates an adjustment screw 10, the free end 11 of which is able to bear against the clamping plate 6.

The outer end of the screw 10 carries a hand knob 12 having a skirt 13 which surrounds the nut 9. Nut 9 is also equipped with a skirt 14 which closely envelopes skirt 13. The skirt 13 is rotatable relative to nut 9, or skirt 14, or both, with such a degree of frictional contact as will prevent over-free rotation of screw 10. These rubbing surfaces (i.e. of nut 9 and skirt 13 and 14) may be roughened or longitudinally fluted to enhance frictional resistance to rotation of screw 10. For preference, the skirt 13 has external serrations or kurling plates or grooves which engage with similar flutes or grooves formed inside skirt 14. On turning knob 12 deliberately, the serrations permit step-by-step rotation of the knob relative to the nut. The resistance to rotation

preferably does not exceed .25 inch lbs. This degree of resistance to turning permits intentional knob adjustment while ensuring against unwanted knob rotation.

For preference, the knob 12 is calibrated (as indicated at 15) so that settings of the screw 10, and hence the extent to which the clamping plate bears against a tube extending through the sleeve may be selected as required.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:-

1. Drip-feed control means comprising:

(a) an open-ended sleeve adapted to have a flexible liquid-carrier tube extending longitudinally through it;

(b) a movable clamping plate mounted by one end inside said sleeve so that the other free end of the plate may bear against a tube extending through said sleeve;

(c) an adjustment screw which extends through a nut mounted on the wall of said sleeve and has one end able to bear against said clamping plate;

(d) a turning knob fixed on the other end of said screw; and,

(e) rotation-restraining means which permit intended manual rotation of said knob while preventing unwanted rotation thereof.

2. Drip-feed control means according to claim 1 wherein said sleeve is longitudinally slotted to permit a tube to be sidewardly entered thereinto.

3. Drip-feed control means according to claim 1 or claim 2 wherein said clamping plate is integral with but flexibly connected to said sleeve.

4. Drip-feed control means according to claim 1 or claim 2 wherein said clamping is hinged to said sleeve.

5. Drip-feed control means according to any one of claims 1 to 4 wherein said rotation-restraining means consist of a skirt on said adjustment screw which frictionally

envelopes but is rotatable relative to said nut.

6. Drip-feed control means according to claim 5 wherein said skirt on said adjustment screw is externally enveloped by a further skirt on said nut.

7. Drip-feed control means according to claim 6 wherein the mutually contacting surfaces of said skirts are serrated to prevent over-free rotation of one relative to the other.

8. Drip-feed control means substantially as herein described with reference to the drawings herewith.

DATED this 14th day of April, 1977.

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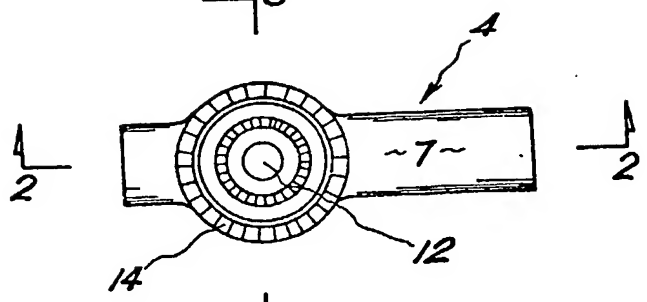

FIG. 1.

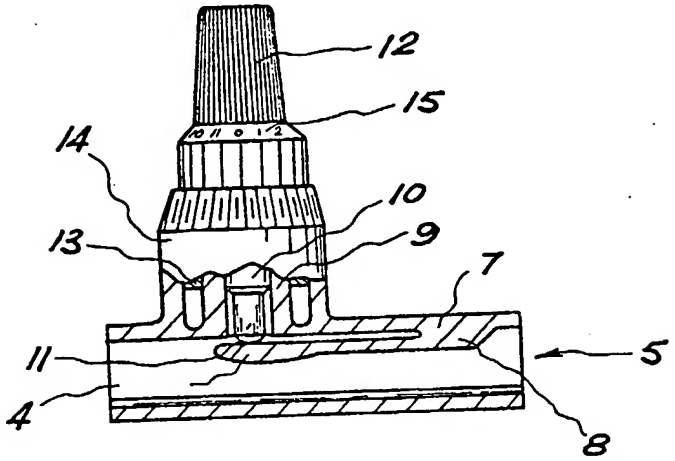

FIG. 2.

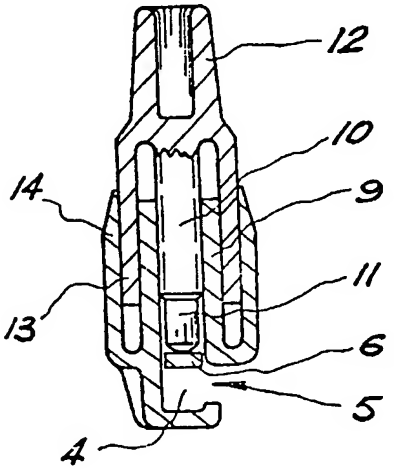

FIG. 3.